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THE CAPTURE OF A BASKING SHARK ON LONG ISLAND.

A fourteen-foot Basking shark, *Cetorhinus maximus*, was captured on June 29, 1915, at Westhampton Beach, on the south shore of Long Island. It had become entangled in a bluefish net operated by a local fisherman, and was hauled ashore still alive. I had the good fortune to examine it two days later as it was being cut up for removal from the beach, and obtained the head, jaws and several other parts for the American Museum for further study.

Records of *Cetorhinus* as far south as Long Island are extremely few, so that it seems desirable to call attention to the present specimen.

The shark was a male, fourteen feet in length. The caudal had been cut off before I reached the scene, so that I could not verify the exact length; but, from the measurements I made, the length was apparently as stated. The specimen was therefore small for this species, not even half grown.

The color of the shark was grayish black, a little darker above than on the sides and belly. The under side was not white, as it is stated to be in textbooks; the only white about the specimen was a triangular patch on the under side of the rostrum, extending from the mouth as a base, to a point half-way to the

tip of the snout. There were also two pale bands in the mid-ventral region, one on either side of the median line; they were about two inches in width, and had broken or jagged margins. They were confined to a portion of the ventral region, in front of the mixopterygia.

The most striking feature about the shark, to one who had never seen the species in the flesh, was the extraordinary shape of the rostrum. This was the exact form of the lead end of a bullet, and so unlike that of any other shark that it could serve as a diagnostic character equally with the enormous gill-clefts, to distinguish this species from all other sharks. It should be noted, too, that the rostrum was not short, as it is represented in textbook figures, but projected considerably in front of the mouth.

The whole surface was covered with minute tubercles, which were rough to the touch when the shark was stroked from behind forward. The tubercles were especially large at the tip of the rostrum. On the snout, both above and below, were sensory pores distributed in groups. They were transversely elongated and very large, some of them ¼ inch in width. The long, slender gill-rakers, which are so distinctive of this species, were black in color, and looked like long, finely toothed combs attached to the gill bars. The longest rays were 2⅞ inches in length. The teeth were set in the jaws in three rows, except in a few spots, where there were a few extra teeth giving the appearance of four rows.

The alimentary canal contained a large quantity of bright red material. On examination under the microscope, this resolved itself into a vast multitude of minute Crustacea (species not yet determined), whose reddish bodies lent color to the entire mass.

A few measurements, especially of the head region, may here be given: Rostrum, from front of

eye, 10¼ in. Diameter of eye, 1½ in. Front of eye to nostril, 3 in. Width of nostril, 1¼ in. Distance between inner margins of nostrils, 4¾ in. Mixopterygia, 7¼ in.

A fuller account of this specimen with photographs of the freshly-captured fish and figures of anatomical details will shortly be published.

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ON FISH-BONES IN A KINGFISHER'S NEST.

Through the kindness of Mr. S. H. Chubb of the American Museum the writer has had for examination a mass of fish-bones, scales, etc., from the recently occupied nest of a kingfisher, and has looked it through to determine the species of fish eaten in this case. The results have both an ichthyological and ornithological interest.

The nest referred to was placed in a bank about one-quarter of a mile from Van Cortlandt Lake, New York City. It was occupied by young kingfishers 29 days between the times of hatching and departure. Immediately after they had gone Mr. Chubb removed about two quarts of soil from the bottom of the nest, and from this about 220 cubic centimeters of clean bones, scales, etc., was obtained, representing probably three-quarters of all the fish remains in the nest.

The most striking single objects among the bones were the beautifully preserved tooth-bearing pharyngeals of small cyprinids, of which there were 113. The mass was carefully gone over for readily recognizable bones of other fishes and surprisingly few encountered. Lower jaw bones of 2 or 3 small pickerel (*Esox*), 3 to 5 inches in length, were noted; also the opercle of a yellow perch (*Perca flavescens*), about

four inches, and anal spines of a sunfish, about three inches long. There were also pieces of the shell of a crawfish. The absence of suckers (catostomids) was unexpected. Their pharyngeals would have been as easily picked out as those of the cyprinids, and supposing that their bottom habits protected them, then how about the crawfish?

Of the 113 minnow pharyngeals, 90 were identified as from the golden shiner (*Abramis crysoleucas*), 21, not satisfactorily determinable, were perhaps also this species, and two were from different individuals of the goldfish (*Carassius auratus*). That particular nest of kingfishers was then concerned with cyprinids, of which at a minimum estimate it accounted for 76 individuals, and of these the golden shiner made the greater part, probably almost the entire number.

The golden shiner is probably the most abundant fish in still and slow-moving fresh-waters near New York City, yet it would scarcely figure as largely in the kingfisher's bill of fare were there no discrimination in its favor. There is no obvious reason why the goldfish, which is also abundant, should not be as readily obtained. The writer suspects that the kingfisher selects that fish which in a given region furnishes it the best food supply, and specializes in the capture of the same disregarding other species. It would be interesting to learn if the many kingfishers which hunt over the salt and brackish waters near New York specialize on *Menidia* or *Fundulus*.

J. T. Nichols,
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THE TRANSFORMATION OF SPELERPES RUBER (DAUDIN).

Various allusions in literature to the life history of *Spelerpes ruber* as being well known, (though I have been unable to find any published account of

it), have made me hesitate in publishing these notes, but I will give them for what they are worth.

Practically all the specimens studied came from a spring near Haverford, Pa., in which spring both adults and larvae were very abundant, and ten or fifteen could be caught at any time. Some of the larvae were much larger than small adults, my smallest adults being 80-90 mm. long and my largest larvae about 110 mm. long. These larvae were distinguishable from those of *S. bislineatus,* by much larger size and uniform coloration. The smallest seen were as long (50-60 mm.) as the largest larvae of *S. bislineatus* seen and much more robust.

In January of this year I started keeping the larvae alive with a view to watching the transformation. I continued this into the spring with no success, the larvae all dying in a few days, or living on with no signs of transformation.

However, in a series of ten larvae collected on May 20, the largest (110 mm.) showed tinges of red in the ground color and smaller gills. On May 22 this specimen had lost all the filaments of the gills and had taken to lying entirely out of water.

May 23—The gill stumps were shrivelling, the tail fin had gone, and the color was more like that of the adult. A smaller one of the same lot of May 20 (90 mm.) had also lost the tail fin and showed a reddish tinge. The gill filaments also were smaller.

May 24—A (the large one) gills were stubs—eyelid developed—mouth nearly developed—B (the smaller one) eyelids developing—mouth developing —gill filaments ragged.

May 27—A, mouth developed fully—tongue free, gills mere stubs.

May 28—I collected an adult which showed unmistakable signs of having just completed the transformation.

May 29—Not much change in larvae from May 27.

May 31—I killed and preserved the large larva A, and the recently transformed adult of May 28. The gill stubs on A were very small and no longer than their width.

June 1—B has lain out of water for two days. The gill filaments are going.

June 4—B lying out of water all the time. Practicing bucco-pharyngeal respiration. Gill filaments about gone. This specimen was then killed and preserved.

It is thus apparent that *Spelerpes ruber* begins to transform in May. The time of breeding is not known to me and I can find no record of it. The animals remain active all winter in springs. At the time of transformation they are probably well over a year old, as two lots can be distinguished, 80-110 mm. long, and 50-60 mm. long. This would seem to make the duration of the larval period about two years, and would also point to a definite breeding period, probably in the spring and summer. Of course these last statements are simply conjectures.

The question of *Siren operculata* Beauvois arises here. I am of the opinion that before so well established a name as *Spelerpes ruber* be changed, it should be shown beyond the shadow of a doubt that the larva on which Beauvois founded his *operculata* is identical with the larva of *ruber*.

E. R. Dunn,
Haverford, Pa.

NOTES ON AMBLYSTOMA TIGRINUM AT FLAGSTAFF, ARIZONA.

During the month of May, 1913, the writer had good opportunities to study this salamander at an altitude of a little under 7,000 feet.

This species was the only salamander observed in the vicinity and was found in a small stream near a lumber mill. The rocks about Flagstaff are red volcanic larva.

Both the gilled and air breathing forms were found together in the water, some of the specimens reaching a length of about six inches. The color of the gilled forms was olive brown with dark irregular spots on the back, sides, belly and tail fin. The air breathing forms were darker and less spotted. This color varied somewhat with individuals and with the surrounding temperature, the specimens becoming lighter as the air or water became warmer. The gills were not as fully developed as in many specimens which the writer has seen in captivity, and the caudal fin was not as broad. Neither did it extend up the back as far.

Several boys in the vicinity reported finding their eggs during the month of June, while the writer was absent, and secured several immature gilled specimens about two inches in length.

No land forms were found out of the water, although they may have occurred there. But as the ground is exceedingly dry in this vicinity the writer doubts whether this species is found far from water at this locality.

These salamanders were quite abundant in certain pools of the stream, as many as nine being counted in a pool about seven feet in diameter and one foot deep. They were very active and difficult to capture by hand, and generally darted to cover under some submerged plank or stone.

Several specimens of the land form, which the writer collected, are now thriving in shallow water at the Bronx Zoological Park. They feed greedily and will even snap harmlessly at one's finger.

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RHINOCHILUS LECONTEI IN LOS ANGELES.

In the COPEIA of February 20, 1915, (No. 15) appeared a list of fourteen snakes found in the vicinity of the city of Los Angeles. To those must now be added one more recently discovered at Belvidere, California, by Mr. Viggo Tarp. This is *Rhinochilus lecontei* (Baird & Girard) and was found on May 13, 1915, about two miles from the beach on a bare hill near some gopher holes. This specimen is now thriving in captivity on a diet of lizards. It is 38½ inches long.

The only other traces I have found of LeConte's Snake have been in La Canada Valley, where an old bee-man named Charlie Metcalf had skins of two other specimens found in the valley where he lives. Near Los Angeles, LeConte's Snake is considered rare.

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